

Work Order ID 100765

May 1, 2013 7:15:34 AM

100765

Page 1

Item ID: 646.9711

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Blade

Stop

NS2

Start Date: 4/30/13

Start Qty: 30.00

30

Cust Item ID:

Required Date: 5/10/13

Req'd Qty: 30.00

30

Customer:

Reference:

Approvals: Process Plan:

P

Date: 13-05-1

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N)

Date:

Stop

NR2

Work Center ID: 100765-1.prm

Draw Nbr Revision Nbr

646.9700

N/C

100

100

BAND SAW

Bandsaw

Jespa Bandsaw

0.00

0.00

DAS
02
89

13-05-26 (x30)

110

110

HAAS I

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

0.00

Memo

0.00

I-Machine per folio FB135

DWG REV: N/C

FOLIO REV: AA

DAS
02
89

13-05-27 (x30)

PD 13/05/28

2- deburr and break all sharp edges except otherwise noted

NCR: Yes / No

DQA: Date:

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>				
Part No. _____											
NCR No. _____											
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear				General							
Bending <input type="checkbox"/>	Bend <input type="checkbox"/>	Grain <input type="checkbox"/>	Ovalized <input type="checkbox"/>	Pressure/Forced Temperature/Cure							
Centre Not Concentric to O/S <input type="checkbox"/>	BOM/Route <input type="checkbox"/>	Hardware <input type="checkbox"/>	Over/Under tolerance <input type="checkbox"/>	Weld							
Cracks <input type="checkbox"/>	Broken/Damaged <input type="checkbox"/>	Inspection Incomplete <input type="checkbox"/>	Part Incorrect <input type="checkbox"/>	Wrong Stock Pulled							
Crushed/Crimped. <input type="checkbox"/>	Burrs <input type="checkbox"/>	Instructions Incomplete/Unclear <input type="checkbox"/>	Part Lost/Missing <input type="checkbox"/>								
Cuffs <input type="checkbox"/>	Contamination <input type="checkbox"/>	Maintenance <input type="checkbox"/>	Part Moved <input type="checkbox"/>								
Heat Treat <input type="checkbox"/>	Countersink <input type="checkbox"/>	Mislabeled <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/>								
Inspection Strip in Tube <input type="checkbox"/>	Cut Too Short <input type="checkbox"/>	Misread <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/>								
Ripples in Bend <input type="checkbox"/>	Drill Holes <input type="checkbox"/>	Offset <input type="checkbox"/>	Other <input type="checkbox"/>								
Torque Waves in Extrusion <input type="checkbox"/>	Drawing <input type="checkbox"/>	Out of Calibration <input type="checkbox"/>									
Turning Sequence <input type="checkbox"/>	Finish <input type="checkbox"/>	Out of Sequence <input type="checkbox"/>									
Wave/Twist in Tube <input type="checkbox"/>	Folio <input type="checkbox"/>	Outside Dimensions <input type="checkbox"/>									

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Page 2

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Stop

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Start Date: 4/30/13

Start Qty: 30.00

30

Cust Item ID:

Required Date: 5/10/13

Req'd Qty: 30.00

30

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan

Accept

Reject

Reject

Insp.

120

QC2- Inspect parts off machine FAI/FAIB

0.00

Code

Qty

Qty

Number

Stamp

120

QC

Memo

0.00

DAS CT 13-05-27
02
88

Quality Control

130

QC8- Inspect parts - second check

0.00

130

QC

Memo

0.00

Quality Control

Jeff 13-05-30 Ø 30

140

Outsource process - Heat Treat

0.00

140

Outsource1

Outsource process - Heat Treat

Memo

0.00

HEAT TREAT AS PER DWG, SEE NOTE #3

ISSUE P/O: P10: 20029 American.

CD 13/05/30 (30)

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. _____		Rework <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>			
NCR No. _____		Scrap <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>			
		Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>			
		Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>				
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									
FAULT CATEGORY									
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions					
				<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other					

Work Order ID 100765

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Page 3

Item ID: 646.9711

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Blade

Stop

NS2

Start Date: 4/30/13

Start Qty: 30.00

30

Cust Item ID:

Required Date: 5/10/13

Req'd Qty: 30.00

30

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

150

Packaging

Packaging

Memo

0.00

R130p (30)

155

QC5- Inspect part completeness to step on W/O

0.00

228

155

QC

Quality Control

Memo

0.00

B6-7

30

160

160

SprayPaint

Spray Painting

Spray Painting per QSI005 4.2

0.00

Memo

0.00

PRIME AS PER DWG. SEE NOTE #4

PRIMER BATCH:

N/A
JUL 13-05-30
FOR TESTIN'

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>				
			Scrap <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>				
			Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>				
			Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions							
				<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other							

Work Order ID 100765

May 1, 2013 7:15:34 AM

100765

Page 4

Item ID: 646.9711

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Blade

Stop

NS2

Start Date: 4/30/13

Start Qty: 30.00

30

Cust Item ID:

Required Date: 5/10/13

Req'd Qty: 30.00

30

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Operation ID/

Work Center ID

170

170

QC

Quality Control

Operation
Description

QC14- Inspect Spray Paint

Set Up/
Run Hours

0.00

ID

Code

Accept

Reject

Reject

Insp.

Number

Stamp

180

180

Packaging

Packaging

Identify as per dwg & Stock Location:

Memo

0.00

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Quality Control

Memo

0.00

BB

W130607

NCR: Yes / No

DQA: Date:

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____				DISPOSITION		AGAINST DEPARTMENT/PROCESS							
				Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>					
Part No. _____													
NCR No. _____													
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector				
Doc/Data													
Equip/Tooling													
Operator													
Material													
Setup													
Other													
Process													
Supplier													
Training													
Unapproved													
FAULT CATEGORY													
Landing Gear				General									
Bending	Bend		Grain		Ovalized		Pressure/Forced						
Centre Not Concentric to O/S	BOM/Route		Hardware		Over/Under tolerance		Temperature/Cure						
Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect		Weld						
Crushed/Crimped.	Burr		Instructions Incomplete/Unclear		Part Lost/Missing		Wrong Stock Pulled						
Cuffs	Contamination		Maintenance		Part Moved								
Heat Treat	Countersink		Mislabeled		Positioned Wrong								
Inspection Strip in Tube	Cut Too Short		Misread		Power Loss/Surge								
Ripples in Bend	Drill Holes		Offset										
Torque Waves in Extrusion	Drawing		Out of Calibration										
Turning Sequence	Finish		Out of Sequence										
Wave/Twist in Tube	Folio		Outside Dimensions										

Picklist Print

May 1, 2013 7:15:34 AM

Page 1

Work Order ID: 100765

Parent Item: 646.9711

Parent Item Name: Blade

Start Date: 4/30/13

Required Date: 5/10/13

Start Qty: 30.00

Required Qty: 30.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	102.4500	0.386	12.189474			

AISI A2 TOOL STEEL BAR. 0.500 X 1.250

Location	Loc Qty	Loc Code
AT009	102.4500001	
122250	0.0000001	
125350	102.45	

2T 13-05-26

12-19

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier	Engineering Quality Other				
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved											
FAULT CATEGORY											
Landing Gear	General										
	Bending	<input type="checkbox"/>	Grain	<input type="checkbox"/>	Ovalized	<input type="checkbox"/>	Pressure/Forced				
	Centre Not Concentric to O/S	<input type="checkbox"/>	Hardware	<input type="checkbox"/>	Over/Under tolerance	<input type="checkbox"/>	Temperature/Cure				
	Cracks	<input type="checkbox"/>	Inspection Incomplete	<input type="checkbox"/>	Part Incorrect	<input type="checkbox"/>	Weld				
	Crushed/Crimped.	<input type="checkbox"/>	Burrs	<input type="checkbox"/>	Part Lost/Missing	<input type="checkbox"/>	Wrong Stock Pulled				
	Cuffs	<input type="checkbox"/>	Contamination	<input type="checkbox"/>	Part Moved	<input type="checkbox"/>					
	Heat Treat	<input type="checkbox"/>	Countersink	<input type="checkbox"/>	Positioned Wrong	<input type="checkbox"/>					
	Inspection Strip in Tube	<input type="checkbox"/>	Cut Too Short	<input type="checkbox"/>	Power Loss/Surge	<input type="checkbox"/>	Other				
	Ripples in Bend	<input type="checkbox"/>	Drill Holes	<input type="checkbox"/>		<input type="checkbox"/>					
	Torque Waves in Extrusion	<input type="checkbox"/>	Drawing	<input type="checkbox"/>		<input type="checkbox"/>					
	Turning Sequence	<input type="checkbox"/>	Finish	<input type="checkbox"/>		<input type="checkbox"/>					
	Wave/Twist in Tube	<input type="checkbox"/>	Folio	<input type="checkbox"/>		<input type="checkbox"/>					

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03838				SHEET 1 OF 1	
	DWG NO. 646.9700	REV: NC	PREPARED BY B. PETERS	DATE: 04/01/13		EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.
	DWG TITLE: CUTTER SUB ASSY					
	APPROVED BY:	ENGR: <i>J. Brown</i>	MFG: <i>David Barker</i>	QC: <i>A. J. S.</i>	EFF: CURRENT ORDER	
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED NOTES.				ECR: D-13-030	

IS

160165
AB-05-1

2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,
CLASS 2, COLOR BLACK;
PRETREAT PRC-DESO TO PR-148 ADHESION PROMOTER;
PRIME IAW MIL-P-23377 J TYPE I CLASS N; 1-2 MIL MAX

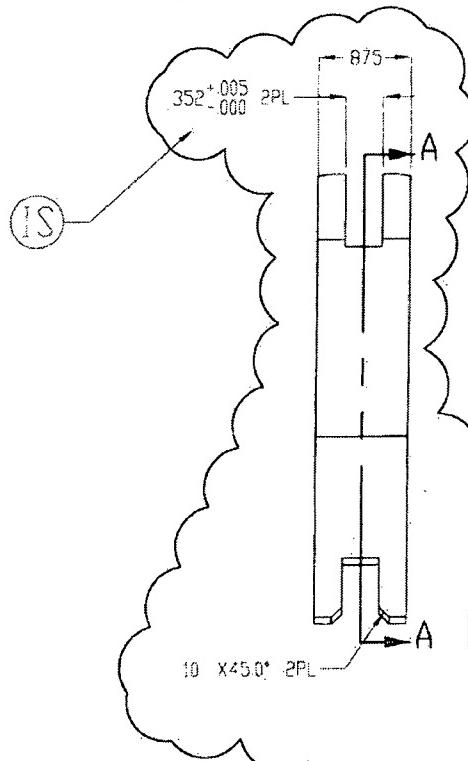
SHEET 1, NOTES IS:

DOCUMENTS EFFECTED:	<input type="checkbox"/> RFMS <input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input type="checkbox"/> ICA <input type="checkbox"/> BOM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
---------------------	---	---	--

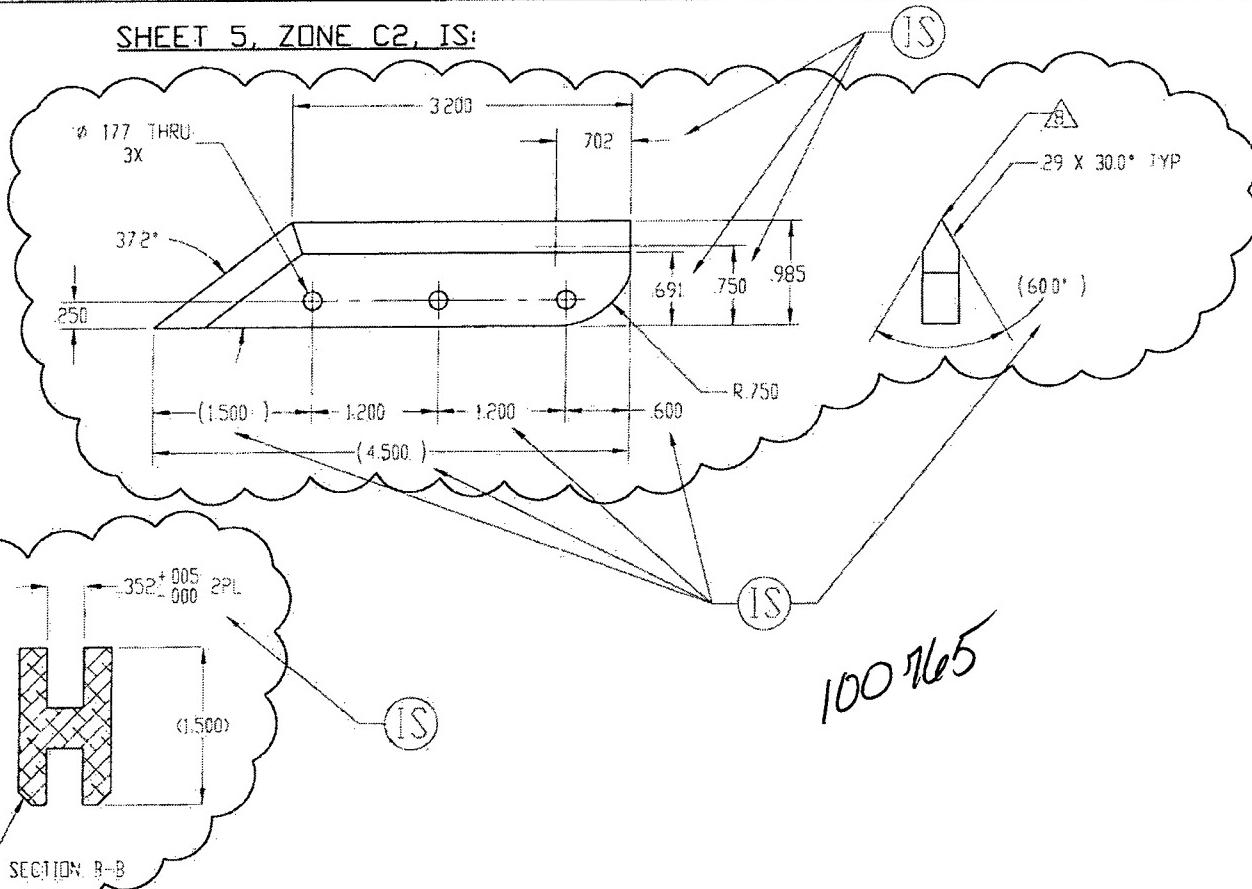
APICAL
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 02744			SHEET 1 OF 1
DWG NO. 646.9700 REV:N/C		PREPARED BY S.HUFF	DATE: 01/07/10
EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.			
DWG TITLE: CUTTER SUB ASSY			
APPROVED BY:	ENGR <i>P.Barr</i>	MFG <i>Harold Jorgenson</i>	QC <i>Wendy Jorgenson</i>
EFF: NEXT ORDER			
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED SCREW LENGTH, CHANNEL WIDTHS & DIMENSIONING SCHEME SHEET 5.	

SHEET 2, ZONE C6, IS:



SHEET 5, ZONE C2, IS:



SECTION: B-B

3	R	601.3157		12	SCREW	MS27039-0818		
				.9701				
F/N	TC	PART NUMBER	QTY	DESCRIPTION		MATERIAL/SPECIFICATION		
DOCUMENTS EFFECTED:						CHANGE CATEGORY <input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input checked="" type="checkbox"/> ICA <input type="checkbox"/> FMS <input checked="" type="checkbox"/> BOM <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR		
DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO								

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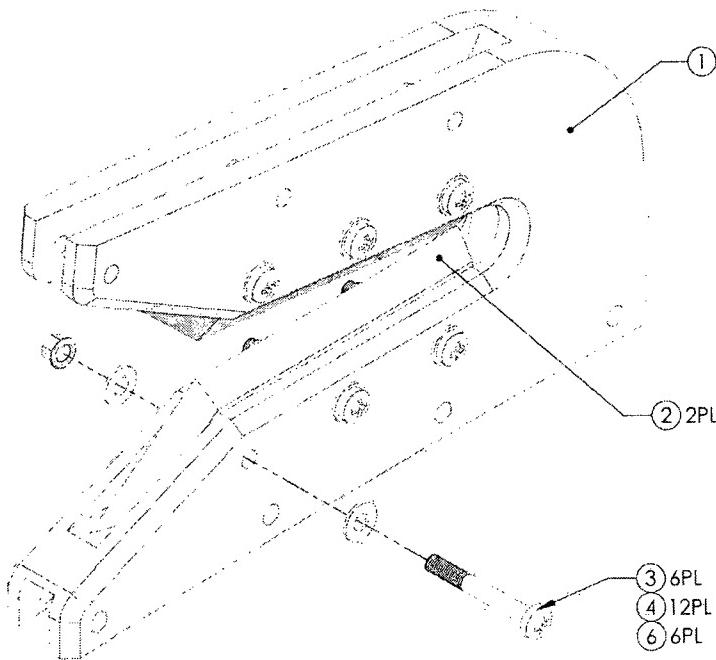
2

10

DESCRIPTION		DATE	APPROVED
REV.	REVISIONS		
1.01	INITIAL RELEASE	08/09/05	P-BUS-001
1.02	LAST PHYSICAL REVIEW REV	08/09/05	P-BUS-002

NOTES

- ⚠ MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12**
 - ⚠ FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,
CLASS 2, COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX**
 - ⚠ ③ MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS**
 - ⚠ ④ FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX**
 - 5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED**
 - 6. IDENTIFY IAW MPP-120**
 - ⚠ ⑦ APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY**
 - ⚠ ⑧ CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE**



646.9701

100165

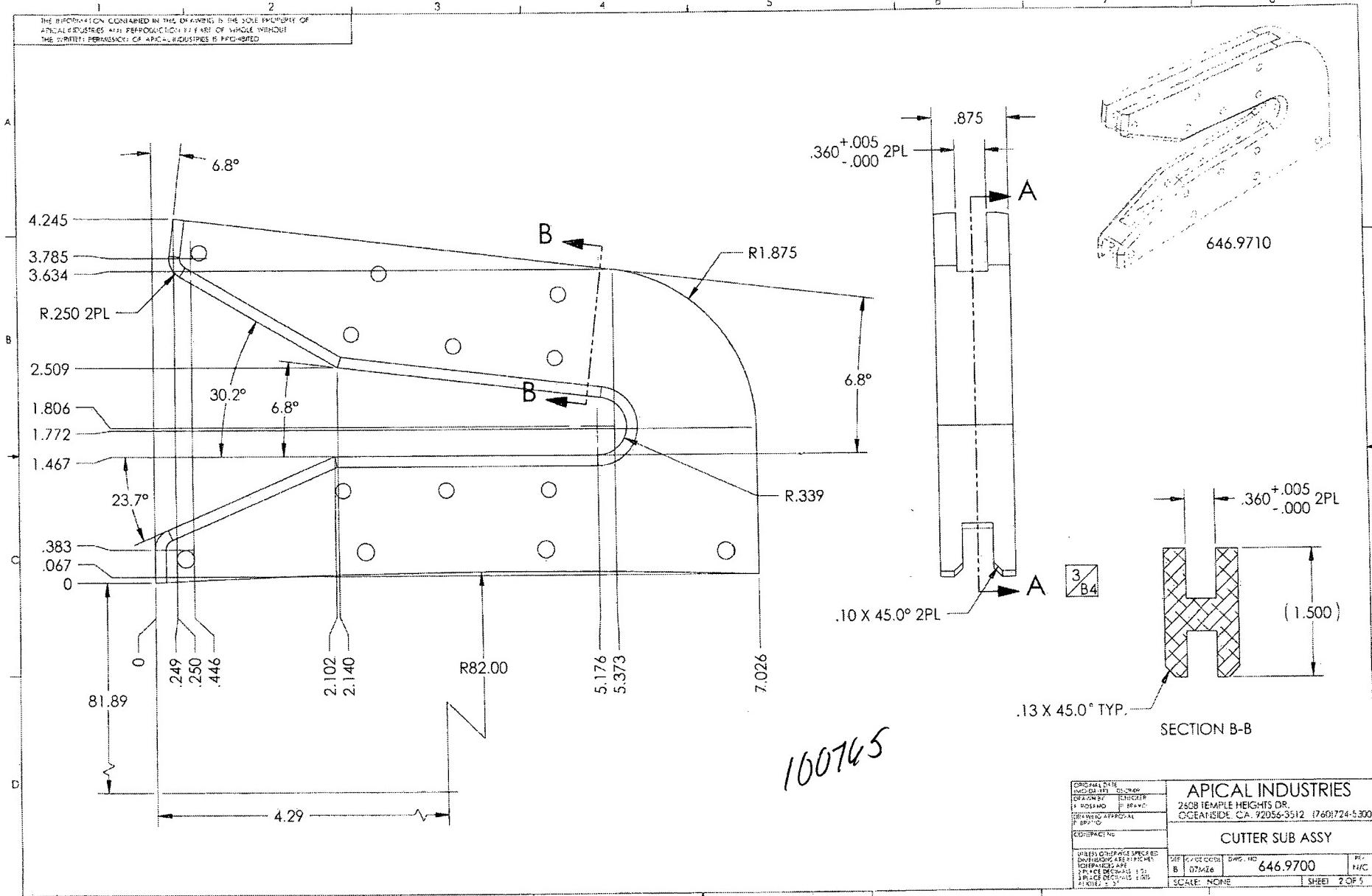
UNINCORPORATED ECN(s)

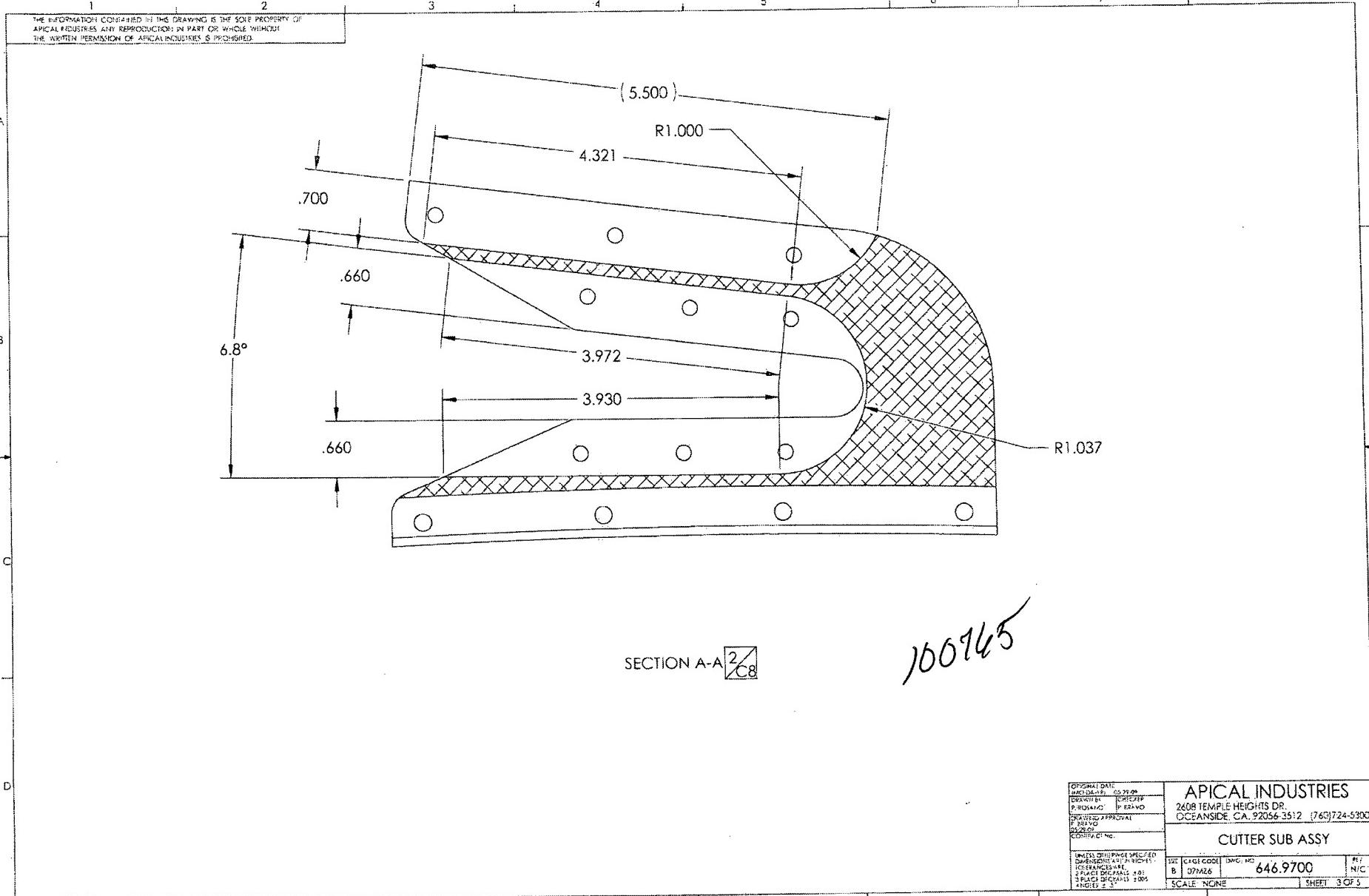
02744, 03838

	6	6	601.1541	LOCKNUK	M527047203
AJR	5	601.2045	RIV. LOCTITE 598		
12	4	601.2764	WASHER	M521109748531	
6	3	601.2765	SCREW	M52703948510	
2	2	646.9711	BLADE		▲
1	1	646.9710	BODY		▲
		646.9701	CUTTER SUB ASSY		▲
ITEM #	FAB ID	PART #	DESCRIPTION	MAUL	SPEC
PARTS LIST					
QTY NEXT ASSY (5) 646.9600 DRAWING NO. 646.9600 REV. B DATE ISSUED 10-10-88 APPROVALS 646.9600 COST CENTER					
APICAL INDUSTRIES 2408 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-2512 (714)724-5300					
CUTTER SUB ASSY					
1. CONFORM TO SPECIFICATIONS 2. DIMENSIONAL AND LOCATIONAL TOLERANCES AS SHOWN 3. FINISHES AS SHOWN 4. SURFACE FINISHES AS SHOWN 5. INCHES AND DECIMAL FRACTION OF AN INCH 6. DRAWINGS ARE IN INCHES					
REV.	DATE	CODE	DMO	PCN	N/C
B	07/96	07M6	10A	646.9700	N/C
SCALE: NONE 1 SHEET OF 5					

1 1 1 2
3 4 5 6 7 8

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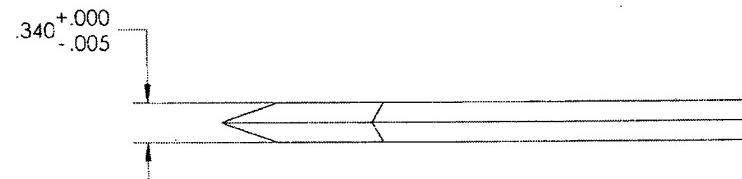




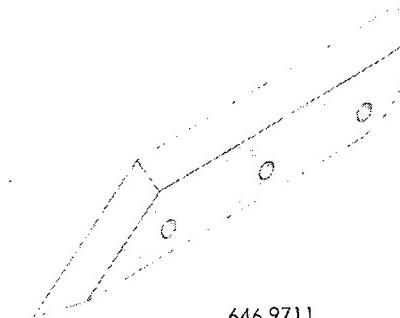
1 2 3 4 5 6 7 8

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THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

A

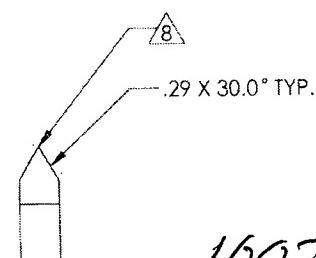
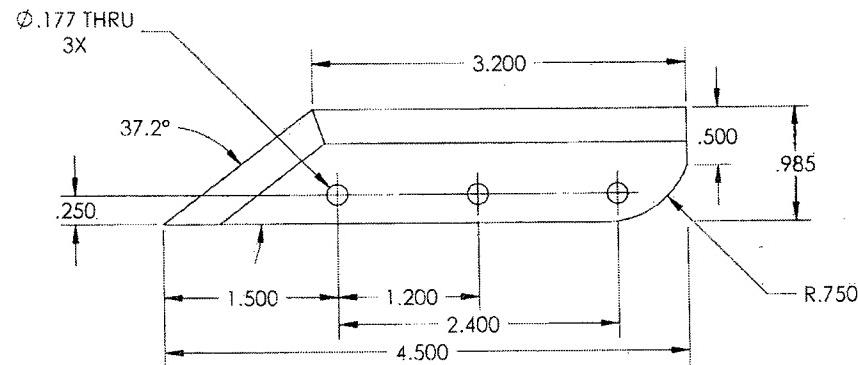


B



646.9711

C



D

DATE	APRIL 1988	APICAL INDUSTRIES
DESIGNER	ROBERT J. SPANOS	2608 TEMPLE HEIGHTS DR.
DRAWN BY	R. SPANOS	OCEANSIDE, CA. 92056-3512 (760)724-5300
REVISION	P SPANOS	
SPANNING & APPROVAL		
MANUFACTURE		
PACKAGING		
DISPATCHING		
1. DESIGN SPECIFIED		
2. DIMENSIONS & PERIODIC		
3. TRACE DECIMALS 4-DIGIT		
4. SPACES FOR CANCELLATION		
5. ANNOTATIONS		
6. SCALE	1:1	REV. N/C
7. DATE CODE	646.9700	
8. SHEET	1	5 OF 5

DART AEROSPACE LTD	Work Order:	100765
Description: 646.9711-Blade	Part Number:	646.9711
Inspection Dwg: 646.9700 Rev: N/C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

104c

Measured by:		Audited by:		Preliminary Approval:	
Date:	13-05-27	Date:	13-05-30	Date:	

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

10.06.15



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO20029**

Purchase Order Date 5/30/2013

PO Print Date 5/30/2013

Page Number 1 of 1

Order From : VC-MET004

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

Contact Name	Buyer	Chantal Lavoie
Vendor Phone	Requisition Nbr	
Vendor Fax	Tax Resale Nbr	10127-2607
Vendor Account Nbr	Terms	Net 30
	Currency	CAD
	FOB	Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAXED
(69305)

Line Nbr	Reference Revision ID	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	100765	646.9711 blade	5/31/2013 Yes	30.00	FedEx PI collect	\$0.0000	\$0.00

Special Inst: FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL
STEEL

PLEASE NOTE: DETAIL C OF C
REQUIRED

3	100765	DETAIL C OF C	5/31/2013 Yes	1.00	FedEx PI collect	\$48.0000	\$48.00
---	--------	---------------	------------------	------	------------------	-----------	---------

PO Total: \$48.00

CL
No substitution or deviation without
consent.

Certificate of Conformity or Material
Certification required -**YES** NO

Change Nbr: 1

Change Date: 5/30/2013

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL	EXPÉDITEUR	BON D'EXPÉDITION
Order	Shipper ID	Shipper
186809	1	72230

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

PICK UP

COMMANDE DU CLIENT	BON DE LIVRAISON DU CLIENT	TYPE DE MATÉRIEL	DATE DE LA COMMANDE	TRANSPORTEUR
Customer PO	Customer Shipper No.	Material Type	Order Date	Carrier
PO 20029		A2	2013/5/31	FEDEX

QUANTITÉ	No. PIÈCE / NOM DE LA PIÈCE	DESCRIPTION DE LA PIÈCE	POIDS
Quantity	Part No.	Part Name	Weight

30 64.9711
(30) BLADE
REFERENCE: 100765
MATERIAL: AISI A2 TOOL STEEL

CONTENANT: 1 BOÎTE DE CARTON

TYPE DE CONTENEUR	# DE CONTENEURS	COMMENTAIRES CONTENEUR
Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE	
Packing	

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 30
POIDS EXPÉDIÉ / Weight Shipped : 8,00
QUANTITÉ RESTANTE / Quantity Remaining : 0
POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE /Quantity Shipped:	30
POIDS EXPÉDIÉ / Weight Shipped :	8,00

Signature: _____ Date: _____

EXPÉDIÉ LE / Shipped On : 2013/06/07



560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8
 Tél. 450 473-1884
 Télécopieur/Fax administration 450 491-5498
 Télécopieur/Fax production 450 491-6454

Page 1 / 1

Certificat de Conformité
Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
186809	1

CLIENT / customer 215

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

UVRÉ À / shipped to:

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO 20029		A2		

SPECIFICATIONS DU PROCÉDÉ
 processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	30	59.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
30	8	64.9711 (30) BLADE REFERENCE: 100785 MATERIAL: AISI A2 TOOL STEEL CONTENANT: 1 BOÎTE DE CARTON

6/09/14

COMMENTAIRES / comments

CERTIFIÉ par / Certified by:

METCOR
 7

DATE: 2013-06-07

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détailé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
186809	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

COMMANDÉ DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO 20029		A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results		
HARDNESS	58 - 62 HRC	30	59.0 - 61.0 HRC	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
30	8	646.9711 (30) BLADE REFERENCE: 100765 MATERIAL: AISI A2 TOOL STEEL CONTENANT: 1 BOÎTE DE CARTON		

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 PREPARING	COMPTAGE									
3.00 PREHEAT 1	1200	0:30	VAC			393				
4.00 PREHEAT 2	1500	0:30	VAC							
5.00 VAC HARDE	1800	1 hrs 00 minutes	VAC		AZOTE					
6.00 TEMPER	400+/-10°F	2 hrs	air			616				
7.00 HARDN INS										

METCOR INC.
560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Tel: 450-473-1884 / Fax: 450-491-5498

BON DE TRAVAIL order	CHARGEMENT load
186809	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
8.00 FINAL INSP							06-07-2013			06-07-2013

COMMENTAIRES / comments

Le traitement thermique a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de traitement thermique ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandées ont été faites et documentés. Aucun changement ou dérogation n'a été faite par rapport au traitement thermique demandé. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

All the heat treatment processing performed on this order was accomplished using heat treatment equipment compliant with the requested heat treatment specification.

All the heat treatment operations were accomplished in accordance with the requested/required heat treatment specification and all required verifications test have been performed and documented.

No unauthorized changes or deviations to required heat treatment specifications or procedures have been performed.

We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:

DATE: 2013-06-07

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.